

Solicitation RFIs – Spinal Cord Corridor Project

1. Can we get a copy of the sign in list from the site visit – Sign-in sheet will be added with the amendment.
2. Are the badge procedures written down anywhere? I need to be able to send them to my subcontractors as they will need to price for the extra time it takes to get badged at San Antonio VA.

Ans – Form 306 (Background check) and SAC (for fingerprinting) are required. Upon contract award, these will be provided to contractor. Each one will be filled by each worker with two forms of valid IDs, COR will verify them and then these will be taken by the contractor to the Badge Office, Human Resources (HR). HR office for badges are: Monday, Tuesday, Thursday from 8:30AM to 3 PM. This process may take approximately 2 weeks.

3. Can the VA determine a VA owned location for contractors to park?

Ans – There is no location available for parking on the VA premises. For all the phases in which work is conducted from 6 PM to 6 AM, contractor can use the parking in the premises. This will be coordinated with COR.

4. Are there special requirements with the fire sprinkler system and the fire alarm system when we remove the ceiling? (fire watch, temporary ceiling, etc..)

Ans – Fire sprinkler system won't be disabled. If fire alarm need to be operational. If the latter require disabling, coordination need to be done through COR.

5. Does the VA have a primary Fire alarm services or can we choose a Fire alarm service provider.

Ans - Beckwith Electronic Engineering Company, 210-699-6441, ext. 120

6. Who do we need to coordinate with for the security system?

Ans – Contact COR Jeff Torres 279-1319 or Mr. Andre Dorsey, VA Bio-Med, (210) 385-0953 for coordination of these before doing any work/disabling these.

7. Has the work area been checked for asbestos and if not, what is the VA's policy for if we find some or think that some needs to be tested.

Ans – The area has been determined not to have asbestos. Anyhow, the area will be tested for ACM by the VA and results will be provided to contractor prior to start work.

8. Please indicate which windows are available for venting the negative air machines?

Ans – Any nearest exterior window can be used. This will be coordinated with COR.

9. In addition to the security system, can you provide the points of contact for the other low voltage systems in the hospital including nurse call, accessibility (secure doors), intercom, other audio, etc.) ?

Ans – Contact COR Jeff Torres 279-1319 or Mr. Andre Dorsey, VA Bio-Med, (210) 385-0953 for coordination of these before doing any work/disabling these.

10. Please see Sheet A-12. The finish schedule and detail drawings show ceramic tile being installed behind the relocated EWC. However, I don't seem to find a spec section for CT. Is one required for this small a scope?

Ans – Specification Section 09 30 1, CERAMIC TILING is attached.

11. Please see Sheet E-1. General Note 10 calls for fire alarm work to be done in accordance w/issued fire alarm drawings. I don't seem to find any fire alarm drawings. Will Fire alarm drawings be issued, or should this statement be deleted/ignored?

Ans – Existing fire alarm system won't be modified. Disregard note referring to fire alarm drawings.

12. Per site visit, NO ASBESTOS remediation required? Please include copy of asbestos survey in solicitation.

Ans – The area has been determined not to have asbestos. Anyhow, the area will be tested for ACM by the VA and results will be provided to contractor prior to start work.

13. Ceiling height to remain the same throughout? An additional piece of track (2"X1") will need to be added, to top of existing stud wall in order to extend new gyp board above existing wall and to attach the new wall angle-is this approach acceptable?

Ans – Existing ceiling height is to remain throughout. Using an additional piece of track (2"X1") to be added to top of existing stud walls in order to extend new gyp board above existing wall and to attach the new wall angle-is acceptable.

14. No changes in ceiling layout- new grid will mirror grid previously removed?

Ans – This is correct.

15. Existing systems furniture to be disassembled and stored before reassembled and moved back: will the VA provide a designated area to store furniture? Will the GC need to provide storage containers, if so, will an area on campus be provided for storage containers?

Ans – VA cannot provide area to store furniture. Storage containers are not allowed within VA premises.

16. Resilient floor specified had some reports of trouble with their adhesive and plank performance, can an equal be proposed?

Ans – The flooring indicated in the procurement shall be bid upon as indicated. We are not, at this time, entreating bidders to offer substitutions through this Invitation for Bid (IFB) procurement, submit a bid on the entire requirement as indicated by the specifications and drawings.

17. Will prep work be allowed in the interstitial during normal duty hours?

Ans – Yes

18. In regards to containment: what is permitted and what will not be permitted?

Ans – (1) Poly plastic will be allowed as per Amendment 0001 in main corridors, Phases A, B, C, and F. See item (3) below for lobby in Phase B

(2) Hard perimeter barriers as per specifications shall be used in Phases D and E. Phase D will include only one corridor and part of the nurse station, and Phase E will be the same. That is to allow the hospital to use one wing at a time, inside the patient ward, while construction is being done in the other half. This means that in phases D and E the barriers will be placed at the perimeter—main entrance to wing, half of nurse station area, corridor D059. Use this guide for barrier placement in phases D and E (A8):

- a. Phase D – Corridor D061, half of corridor D051, D060
- b. Phase E – Corridor D058, half of corridor D051, D059

(3) As per Amendment 0001, the lobby part of phase B need to be done in two mobilizations. This means half the lobby will be done at a time. Hard perimeter barrier will be required each time.

19. Wall protection. Will only INPRO Corporation products be permitted?

Ans – Yes

20. Door frame protection. New door frame protection (guards) be required at all door locations?

Ans – Only inside the patient ward, phases D and E

21. Per site visit. No fire suppression (sprinkler system) work is required since existing ceiling height will be maintained? Sprinkler heads will not be centered on new ceiling tiles?

Ans – No fire suppression (sprinkler system) work is required since **existing ceiling height will be maintained**. Sprinkler heads **will not** be centered on new ceiling tiles.

22. Per site visit. Should any air register (supply / return) need to be moved; only rectangular duct will be permitted to make new connection?

Ans – Yes

23. Provide bid alternate to remove granite tile from C042, is this all related -Phase F (add alternate # 2)?

Ans – Ignore note in A3 referring to “add alternate, keep existing granite tile finish in C079 and C082”. Corridor C042 is part of the lobby in phase B.

24. Will the GC be allowed to work multiple areas?

Ans – For bid purposes, no. Work shall be as per scope of work.

25. Phasing: Phases A through F are indentified. Is the intent to commence work at Phase A and proceed through Phase F or is it possible to perform the work in some order other than A, B, C...

Ans – They don’t have to be worked in consecutive order.

26. Phasing: Notes on the plans indicate work in Phase G is “not in contract.” However, demolition and new construction in Phase G is shown throughout the plans. Please confirm that Phase G is NIC

Ans – Phase G is NIC.

27. Section B – Schedule of prices: How will the low bidder and contract awardee be determined? Will the determination be made based on the “grand total” for Base Bid and all add alternates (CLINS 0001 to 0006) or will low bidder be determined in some other manner? Please advise.

Ans – An award shall be made on the BASE BID, CLIN items 0001 and 0002, if the base bids exceed allocated funding for the project, NO award may be made on the Base Bid. Awards on Add Alternates shall be awarded in succeeding order depending on the availability of appropriated funding. Offerors must Bid on all line items (base and all add alternates) in order to be considered.

28. Door re-finishing: Drawings A7 and A8 require all corridor doors with plywood venner finish to be refinished on both sides. The subject doors will have to be removed to refinish them properly and it is unlikely that they can be reinstalled at the end of any given shift during the refinishing process. Is that acceptable for doors leading into patient rooms and offices? If temporary doors are required, will they be furnished by VA?

Ans – Door refinishing only in patient ward, Phases D and E.

29. Ceiling height: At the pre-bid site visit there was discussion about lowering the new ceiling height to 9’-4”. Please confirm.

Ans – Existing ceiling height is to remain throughout. Using an additional piece of track (2”X1”) to be added to top of existing stud walls in order to extend new gyp board above existing wall and to attach the new wall angle-is acceptable.

30. Construction barrier walls: In reference to Amendment A00001, Question 4, please identify the specific location of any hard construction barrier walls required in Phase B lobby, Phase D and Phase E.

Ans – (1) Poly plastic will be allowed as per Amendment 0001 in main corridors, Phases A, B, C, and F. See item (3) below for lobby in Phase B

(2) Hard perimeter barriers as per specifications shall be used in Phases D and E. Phase D will include only one corridor and part of the nurse station, and Phase E will be the same. That is to allow the hospital to use one wing at a time, inside the patient ward, while construction is being done in the other half. This means that in phases D and E the barriers will be placed at the perimeter—main entrance to wing, half of nurse station area, corridor D059. Use this guide for barrier placement in phases D and E (A8):

- a. Phase D – Corridor D061, half of corridor D051, D060
- b. Phase E – Corridor D058, half of corridor D051, D059

(3) As per Amendment 0001, the lobby part of phase B needs to be done in two mobilizations. This means half the lobby will be done at a time. Hard perimeter barrier will be required each time.

31. Typical Door Protection notes #1 indicates “All doors occurring in corridor with plywood veneer finish including plywood cabinet doors, to be refinished on both sides. Refinishing of doors to be per industry standards, including sanding, priming, staining (to match existing) and application of multiple coats of protective coating (low voc polyurethane).” Please confirm these rooms will be allowed to be left open for several days while the door refinishing work is being done. If not, will contractor be required to purchase temporary doors to perform this refinishing process? Please clarify.

Ans – Door refinishing only in patient ward, Phases D and E.

32. Reflected ceiling plans use symbol with description “Camera to be replaced.” Specification table of contents indicates “Division 28 Electronic Safety and Security Not Used.” Are cameras being replaced? If yes, please provide a specification for the cameras.

Ans – Existing cameras won’t be replaced. If they need to be disabled during ceiling work, coordination needs to be done with the COR as per scope of work.

33. Reference 3/A13. What is being depicted by the air space between the two slivers of gypsum board?

Ans – The detail failed to show the fasteners and instead shows an “air gap”. Refer to a clear picture attached. The detail remains as is and instead of a gap show fasteners.

34. Demo plan note 2 indicates to remove gypsum board from corridor walls leaving studs and insulation in place. We assume there is 1 layer of gypsum board to be removed at each corridor wall. If there is more than 1 layer being removed, please clarify to all bidders and indicate locations.

Ans – As-built drawing – 30-Bed Spinal Cord Injury Unit Sheet I-29 depicts two (2) layers on Gypsum Board 1ea. 5/8" and 1ea. 1/2".

35. Please clarify what is required by refurbishing the drinking fountain (reference keynote 8/A3 typical).

Ans – Wipe clean to look good.

36. Demo Note 2/A3, typ indicates to remove existing wainscot. Is this wainscot ceramic tile?

Ans – Yes

37. Plans do not include a detail of the existing hollow metal door/window frames and the new gypsum board. Please provide so that bidders can price any special work/trim, etc. required at door/window frames to gypsum board if any is required.

Ans – There are no hollow metal doors/windows frames to be replaced.

38. Keynote 48 on architectural plan sheet A11 calls for a new electrical receptacle (not shown on electrical drawings) with internal gfi. Are we to tie into the nearest electrical circuit?

Ans – Disregard note.

39. Typical wall detail 1/A12 indicates gypsum board from floor to ceiling, however detail 7/A13 labeled cornerguard seal at floor section depicts new gypsum board proceeding past the new ceiling. We assume gypsum board past ceiling only applies at wall types W1, W2, W3, and W4.

Ans – Typical wall detail is from floor to ceiling.

40. Plan sheet A13 Provides Floor Transition Details between dissimilar floor finish types. Plans do not indicate floor finish type on the non-corridor side of the walls. Please clarify where details 11, 12, and 13 apply on the floor plans.

Ans – Room C002A-VCT; C002A-VCT; C002C-VCT; C003-Carpet; C004-VCT; C005-Carpet; C006-VCT; C007-VCT; C009-VCT; C010-Ceramic; C011-Ceramic; C012-VCT; C013-VCT; C014-VCT; C014.1-VCT; C081-VCT; C001-VCT; C018-Ceramic; C015 (C042)-Ceramic; D036-VCT; D030-VCT; D028-VCT; D024-VCT; D022-VCT; D020-VCT; SW013-Safety Rubber; D018-Sheet Vinyl; D014-VCT; D015-VCT; D012-VCT; D013-VCT; D010-VCT; D008-VCT; D006-VCT; D058-VCT; D055-VCT; D007-VCT; D005-VCT; D038-VCT; D002-VCT; D003-Carpet; D001-Carpet.

41. Please confirm that a new threshold is being required at door opening between existing VCT and new Vinyl Luxury Tile per plan sheet A13.

Ans – Threshold will be required if one floor is thicker than the other. Cannot have any steps noticeable that could potentially become a tripping hazard.

42. Detail hasn't been provided for flooring transition at door openings between existing VCT to New Vinyl Plank Flooring.

Ans – Provide rubber type transition 2"x3/8" with silicone at expose joints.

43. Detail 15/A13 indicates gypsum board to close to deck at Wall Types 1, 2, and 3 (Fire Rated Walls). Plans do not indicate a floor to deck height above. Please provide deck heights in each of these areas.

Ans – Fire Walls are 8' from ceiling height to deck above.

44. We assume the nurses station and the information desk offices will be vacated/relocated during construction. If this is not a correct understanding, please clarify to all bidders.

Ans – Nurse station and info desk will be vacated. Modular furniture will be removed, stored and then re-installed by contractor.

45. Will the VA be moving all of the pre-wired workstations prior to contractor renovations (nurses stations and information attendant offices).

Ans – Nurse station and info desk will be vacated. Modular furniture will be removed, stored and then re-installed by contractor.

46. InPro is being specified for handrails, chair rails, and corner guard 1. We assume Inpro is also acceptable for CG-2 and Wall Guard-1. Please clarify otherwise if this is not a correct assumption.

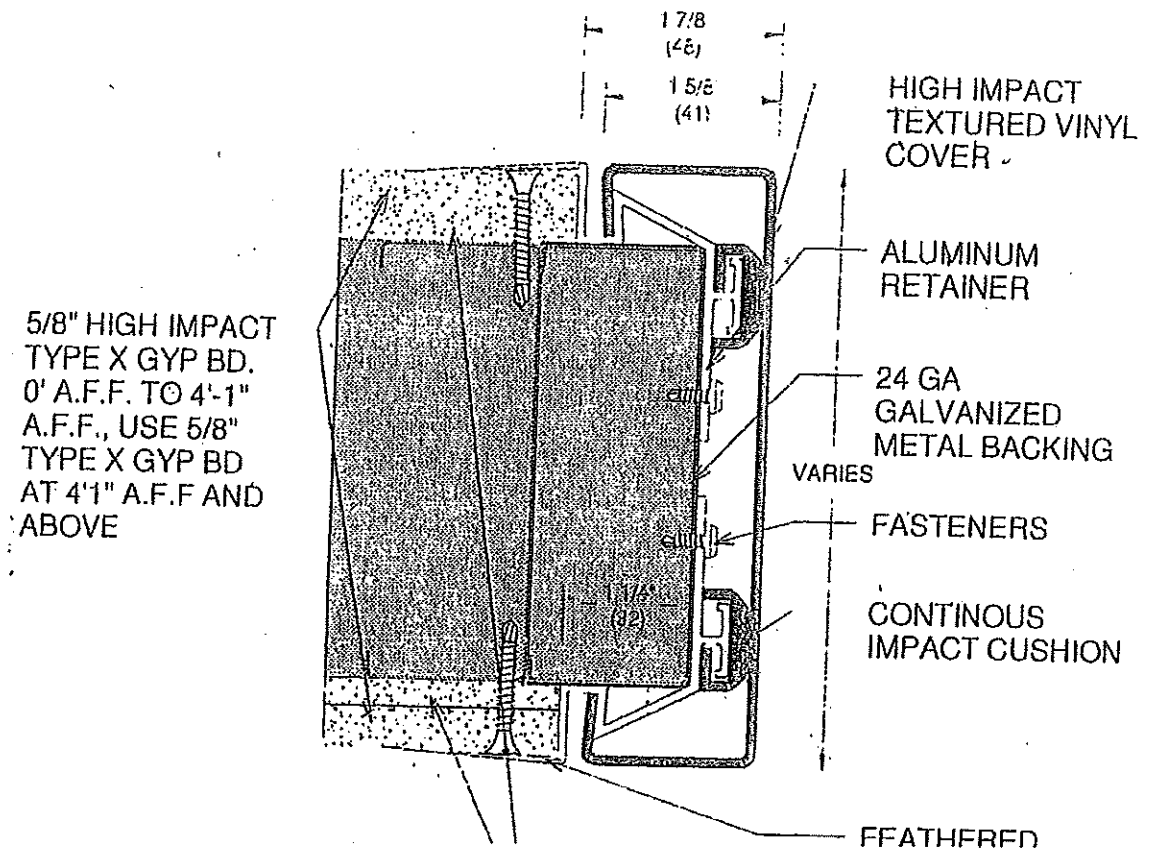
Ans – CG-2 Pawling Corporation, CGF-888, 1 hour, Fire Rated endwall protection, brown- or equivalent. / Wall Guard WG-1 Inpro 700W, woodland group, 0535, honey nut

47. Note G10 on E1 indicates to refer to fire alarm drawings for fire alarm protection work. Fire alarm drawings have not been provided.

Ans – No fire alarm replacement is contemplated in this project. Disregard note G10 in E1.

GENERAL NOTE: Caulk all ceiling grid metal at wall contact and bottom of door frame at sheet vinyl. Color to match existing.

Solicitation RFI - DRAWING - Spinal Cord Corridor Project



Solicitation RFI - SPECS - Spinal Cord Corridor Project

SECTION 09 30 13
CERAMIC/PORCELAIN TILING

SPEC WRITER NOTES:

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies ceramic, porcelain and quarry tile, tile backer board.

1.2 RELATED WORK

- A. Sealing of joints where specified: Section 07 92 00, JOINT SEALANTS.
- B. Plastering: PORTLAND CEMENT PLASTERING.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Samples:
 - 1. Wall (or wainscot) tile, each color, size and pattern.
 - 2. Trim shapes, bullnose cap and cove including bullnose cap and base pieces at internal and external corners of vertical surfaces, each type, color, and size.
- C. Product Data:
 - 1. Ceramic and porcelain tile, marked to show each type, size, and shape required.
 - 2. Chemical resistant mortar and grout (Epoxy and Furan).
 - 3. Cementitious backer unit.
 - 4. Dry-set Portland cement mortar and grout.
 - 5. Divider strip.
 - 6. Reinforcing tape.
 - 7. Latex-Portland cement mortar and grout
 - 8. Commercial Portland cement grout.
 - 9. Organic adhesive.
 - 10. Fasteners.
- D. Certification:
 - 1. Master grade, ANSI A137.1.
 - 2. Manufacturer's certificates indicating that the following materials comply with specification requirements:
 - a. Chemical resistant mortar and grout (epoxy and furan).
 - b. Modified epoxy emulsion.
 - c. Commercial Portland cement grout.
 - d. Cementitious backer unit.
 - e. Dry-set Portland cement mortar and grout.

- f. Reinforcing tape.
- g. Latex-Portland cement mortar and grout.
- h. Organic adhesive.

1.4 DELIVERY AND STORAGE

- A. Deliver materials in containers with labels legible and intact and grade-seals unbroken.
- B. Store material to prevent damage or contamination.

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in text by basic designation only.
- B. American National Standards Institute (ANSI):
 - A108.1A-11.....Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar
 - A108.1B-11.....Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with dry-Set or latex-Portland Cement Mortar
 - A108.1C-11.....Contractors Option; Installation of Ceramic Tile in the Wet-Set method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar
 - A137.1-08.....Ceramic Tile
- C. American Society For Testing And Materials (ASTM):
 - A185-07.....Steel Welded Wire Fabric, Plain, for Concrete Reinforcing
 - C109/C109M-11.....Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 inch. or [50-mm] Cube Specimens)
 - C241-09.....Abrasion Resistance of Stone Subjected to Foot Traffic
 - C348-08.....Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars
 - C627-10.....Evaluating Ceramic Floor Tile Installation Systems Using the Robinson-Type Floor Tester
 - C954-11.....Steel Drill Screws for the Application of Gypsum Board on Metal Plaster Base to Steel Studs from 0.033 in (0.84 mm) to 0.112 in (2.84 mm) in thickness
 - C979-10.....Pigments for Integrally Colored Concrete

- C1002-07.....Steel Self-Piercing Tapping Screws for the
Application of Panel Products
- C1027-09.....Determining "Visible Abrasion Resistance on
Glazed Ceramic Tile"
- C1028-07.....Determining the Static Coefficient of Friction
of Ceramic Tile and Other Like Surfaces by the
Horizontal Dynamometer Pull Meter Method
- C1127-09.....Standard Guide for Use of High Solids Content,
Cold Liquid-Applied Elastomeric Waterproofing
Membrane with an Integral Wearing Surface
- C1178/C1178M-11.....Standard Specification for Coated Glass Mat
Water-Resistant Gypsum Backing Panel
- C1325-08.....Non-Asbestos Fiber-Mat Reinforced Cementitious
Backer Units
- D4397-10.....Standard Specification for Polyethylene Sheeting
for Construction, Industrial and Agricultural
Applications
- D5109-99(R2004).....Standard Test Methods for Copper-Clad
Thermosetting Laminates for Printed Wiring
Boards

D. Marble Institute of America (MIA): Design Manual III-2007

E. Tile Council of America, Inc. (TCA):

2007.....Handbook for Ceramic Tile Installation

PART 2 - PRODUCTS

2.1 TILE

- A. Comply with ANSI A137.1, Standard Grade, except as modified:
 - 1. Inspection procedures listed under the Appendix of ANSI A137.1.
 - 2. Abrasion Resistance Classification:
 - a. Tested in accordance with values listed in Table 1, ASTM C 1027.
 - b. Class V, 12000 revolutions for floors in Corridors, Kitchens,
Storage including Refrigerated Rooms
 - c. Class IV, 6000 revolutions for remaining areas.
 - 3. Factory Blending: For tile with color variations, within the ranges
selected during sample submittals blend tile in the factory and
package so tile units taken from one package show the same range in
colors as those taken from other packages and match approved samples.
 - 4. Factory-Applied Temporary Protective Coating:
 - a. Protect exposed face surfaces (top surface) of tile against
adherence of mortar and grout by pre-coating with a continuous
film of petroleum paraffin wax, applied hot.

- b. Do not coat unexposed tile surfaces.
- B. Glazed Wall Tile: Cushion edges, glazing, as specified in Section 09 06 00, SCHEDULE FOR FINISHES.
- C. Trim Shapes:
 - 1. Conform to applicable requirements of adjoining floor and wall tile.
 - 2. Use trim shapes sizes conforming to size of adjoining field wall tile including existing spaces unless detailed or specified otherwise in Section 09 06 00, SCHEDULE FOR FINISHES.
- 4. Internal and External Corners:
 - a. Square internal and external corner joints are not acceptable.
 - b. External corners including edges: Use bullnose shapes.
 - c. Internal corners: Use cove shapes.
 - d. Base to floor internal corners: Use special shapes providing integral cove vertical and horizontal joint.
 - e. Base to floor external corners: Use special shapes providing bullnose vertical edge with integral cove horizontal joint. Use stop at bottom of openings having bullnose return to wall.
 - f. Wall top edge internal corners: Use special shapes providing integral cove vertical joint with bullnose top edge.
 - g. Wall top edge external corners: Use special shapes providing bullnose vertical and horizontal joint edge.
 - h. For unglazed ceramic mosaic and glazed wall tile installed in Portland cement mortar setting bed, use cove and bullnose shapes as applicable. When ceramic mosaic wall and base tile is required, use C Series cove and bullnose shapes.
 - i. For unglazed ceramic mosaic and glazed wall tile installed in dry-set Portland cement mortar, latex-Portland cement mortar, and organic adhesive (thin set methods), use cove and surface bullnose shapes as applicable.
 - j. Provide cove and bullnose shapes for corners, saddles, and as required to complete tile work.

2.2 JOINT MATERIALS FOR CEMENTITIOUS BACKER UNITS

- A. Reinforcing Tape: Vinyl coated woven glass fiber mesh tape, open weave, 50 mm (2 inches) wide. Tape with pressure sensitive adhesive backing will not be permitted.
- B. Tape Embedding Material: Latex-Portland cement mortar complying with ANSI A108.1.
- C. Joint material, including reinforcing tape, and tape embedding material, shall be as specifically recommended by the backer unit manufacturer.

2.3 FASTENERS

- A. Screws for Cementitious Backer Units.

1. Standard screws for gypsum board are not acceptable.
 2. Minimum 11 mm (7/16 inch) diameter head, corrosion resistant coated, with washers.
 3. ASTM C954 for steel 1 mm (0.033 inch) thick.
 4. ASTM C1002 for steel framing less than 0.0329 inch thick.
- B. Washers: Galvanized steel, 13 mm (1/2 inch) minimum diameter.

2.4 GLASS MAT WATER RESISTANT GYPSUM BACKER BOARD

Confirm to ASTM C1178/C1178M, Optional System for Cementitious Backer Units.

2.5 SETTING MATERIALS OR BOND COATS

- A. Conform to TCA Handbook for Ceramic Tile Installation.
- B. Portland Cement Mortar: ANSI A108.1.
- C. Latex-Portland Cement Mortar: ANSI A108.1.
 1. For wall applications, provide non-sagging, latex-Portland cement mortar complying with ANSI A108.1.
 2. Prepackaged Dry-Mortar Mix: Factory-prepared mixture of Portland cement; dry, redispersible, ethylene vinyl acetate additive; and other ingredients to which only water needs to be added at Project site.
- D. Dry-Set Portland Cement Mortar: ANSI A108.1. For wall applications, provide non-sagging, latex-Portland cement mortar complying with ANSI A108.4.
- E. Organic Adhesives: ANSI A108.1, Type 1.
- F. Chemical-Resistant Bond Coat:
 1. Epoxy Resin Type: ANSI A108.1.
 2. Furan Resin Type: ANSI A108.1.

2.6 GROUTING MATERIALS

- A. Coloring Pigments:
 1. Pure mineral pigments, limeproof and nonfading, complying with ASTM C979.
 2. Add coloring pigments to grout by the manufacturer.
 3. Job colored grout is not acceptable.
 4. Use is required in Commercial Portland Cement Grout, Dry-Set Grout, and Latex-Portland Cement Grout.
- B. White Portland Cement Grout:
 1. ANSI A108.1.
 2. Use one part white Portland cement to one part white sand passing a number 30 screen.
 3. Color additive not permitted.
- C. Commercial Portland Cement Grout: ANSI A108.1 color as specified.

- D. Dry-Set Grout: ANSI A108.1 color as specified.
- E. Latex-Portland Cement Grout: ANSI A108.1 color as specified.
 - 1. Unsanded grout mixture for joints 3.2 mm (1/8 inch) and narrower.
 - 2. Sanded grout mixture for joints 3.2 mm (1/8 inch) and wider.
- F. Chemical-Resistant Grout:
 - 1. Epoxy grout, ANSI A108.1.
 - 2. Furan grout, ANSI A108.1.

2.7 WATER

Clean, potable and free from salts and other injurious elements to mortar and grout materials.

2.8 CLEANING COMPOUNDS

- A. Specifically designed for cleaning masonry and concrete and which will not prevent bond of subsequent tile setting materials including patching and leveling compounds and elastomeric waterproofing membrane and coat.
- B. Materials containing acid or caustic material not acceptable.

2.9 POLYETHYLENE SHEET

- A. Polyethylene sheet conforming to ASTM D4397.
- B. Nominal thickness: 0.15 mm (six mils).
- C. Use sheet width to minimize joints.

PART 3 - EXECUTION

3.1 ENVIRONMENTAL REQUIREMENTS

- A. Maintain ambient temperature of work areas at not less than 16 degree C (60 degrees F), without interruption, for not less than 24 hours before installation and not less than three days after installation.
- B. Maintain higher temperatures for a longer period of time where required by manufacturer's recommendation and ANSI Specifications for installation.
- C. Do not install tile when the temperature is above 38 degrees C (100 degrees F).
- D. Do not install materials when the temperature of the substrate is below 16 degrees C (60 degrees F).
- E. Do not allow temperature to fall below 10 degrees C (50 degrees F) after fourth day of completion of tile work.

3.2 ALLOWABLE TOLERANCE

- A. Variation in plane of sub-floor, including concrete fills leveling compounds and mortar beds:
 - 1. Not more than 1 in 500 (1/4 inch in 10 feet) from required elevation where Portland cement mortar setting bed is used.

2. Not more than 1 in 1000 (1/8 inch in 10 feet) where dry-set Portland cement, and latex-Portland cement mortar setting beds and chemical-resistant bond coats are used.

B. Variation in Plane of Wall Surfaces:

1. Not more than 1 in 400 (1/4 inch in eight feet) from required plane where Portland cement mortar setting bed is used.
2. Not more than 1 in 800 (1/8 inch in eight feet) where dry-set or latex-Portland cement mortar or organic adhesive setting materials is used.

3.3 SURFACE PREPARATION

A. Walls:

1. In showers or other wet areas cover studs with polyethylene sheet.
2. Apply patching and leveling compound to concrete and masonry surfaces that are out of required plane.
3. Apply leveling coats of material compatible with wall surface and tile setting material to wall surfaces, other than concrete and masonry that are out of required plane.
4. Apply metal lath to framing in accordance with ANSI A108.1:
 - a. Use fasteners specified in paragraph "Fasteners." Use washers when lath opening is larger than screw head.
 - b. Apply scratch and leveling coats to metal lath in accordance with ANSI A108.1.C.
 - c. Total thickness of scratch and leveling coats:
 - 1) Apply 9 mm to 16 mm (3/8 inch to 5/8 inch) thick over solid backing.
 - 2) 16 mm to 19 mm (5/8 to 3/4 inch) thick on metal lath over studs.
 - 3) Where wainscots are required to finish flush with wall surface above, adjust thickness required for flush finish.
 - d. Apply scratch and leveling coats more than 19 mm (3/4 inch) thick in two coats.

3.4 CEMENTITIOUS BACKER UNITS

- A. Remove polyethylene wrapping from cementitious backer units and separate to allow for air circulation. Allow moisture content of backer units to dry down to a maximum of 35 percent before applying joint treatment and tile.
- B. Install in accordance with ANSI A108.1 except as specified otherwise.

- C. Install units horizontally or vertically to minimize joints with end joints over framing members. Units with rounded edges; face rounded edge away from studs to form a V joint for joint treatment.
- D. Secure cementitious backer units to each framing member with screws spaced not more than 200 mm (eight inches) on center and not closer than 13 mm (1/2 inch) from the edge of the backer unit or as recommended by backer unit manufacturer. Install screws so that the screw heads are flush with the surface of the backer unit.
- E. Where backer unit joins shower pans or waterproofing, lap backer unit over turned up waterproof system. Install fasteners only through top one-inch of turned up waterproof systems.
- F. Do not install joint treatment for seven days after installation of cementitious backer unit.
- G. Joint Treatment:
 - 1. Fill horizontal and vertical joints and corners with latex-Portland cement mortar. Apply fiberglass tape over joints and corners and embed with same mortar.
 - 2. Leave 6 mm (1/4 inch) space for sealant at lips of tubs, sinks, or other plumbing receptors.

3.5 GLASS MAT WATER-RESISTANT GYPSUM BACKER BOARD

- A. Install in accordance with manufacturer's instructions. TCA Systems W245-01.
- B. Treat joints with tape and latex-Portland cement mortar or adhesive.

3.6 METAL DIVIDER STRIPS

- A. Install metal divider strips in floor joints between ceramic and quarry tile floors and between tile floors and adjacent flooring of other materials where the finish floors are flush unless shown otherwise.
- B. Set divider strip in mortar bed to line and level centered under doors or in openings.

3.7 CERAMIC TILE - GENERAL

- A. Comply with ANSI A108 series of tile installation standards in "Specifications for Installation of Ceramic Tile" applicable to methods of installation.
- B. Comply with TCA Installation Guidelines:
- C. Installing Mortar Beds for Floors:
 - 1. Install mortar bed to not damage cleavage or waterproof membrane; 32 mm (1-1/2 inch) minimum thickness.
 - 2. Screed finish to level plane or slope to drains where shown, float finish.
 - 3. For thin set systems cure mortar bed not less than seven days. Do not use curing compounds or coatings.

4. For tile set with Portland cement paste over plastic mortar bed coordinate to set tile before mortar bed sets.

D. Setting Beds or Bond Coats:

1. Set wall tile installed over concrete backer board in latex-Portland cement mortar, ANSI A108.1B
2. Set wall tile installed over Portland cement mortar bed on metal lath base in Portland cement paste over plastic mortar bed, or dry-set Portland cement mortar or latex-Portland cement mortar over a cured mortar bed, ANSI A108.1C, TCA System W231-02, W241-02..
3. Set tile over concrete in therapeutic pools in Portland cement paste or dry set Portland cement mortar, ANSI A108.1C, TCA System S151-02
4. Set tile installed over gypsum board and gypsum plaster in organic adhesive, ANSI A108.1, TCA System W242-02.
5. Set trim shapes in same material specified for setting adjoining tile.

E. Workmanship:

1. Lay out tile work so that no tile less than one-half full size is used. Make all cuts on the outer edge of the field. Align new tile work scheduled for existing spaces to the existing tile work unless specified otherwise.
2. Set tile firmly in place with finish surfaces in true planes. Align tile flush with adjacent tile unless shown otherwise.
3. Form intersections and returns accurately.
4. Cut and drill tile neatly without marring surface.
5. Cut edges of tile abutting penetrations, finish, or built-in items:
 - a. Fit tile closely around electrical outlets, piping, fixtures and fittings, so that plates, escutcheons, collars and flanges will overlap cut edge of tile.
 - b. Seal tile joints water tight as specified in Section 07 92 00, JOINT SEALANTS, around electrical outlets, piping fixtures and fittings before cover plates and escutcheons are set in place.
6. Completed work shall be free from hollow sounding areas and loose, cracked or defective tile.
7. Remove and reset tiles that are out of plane or misaligned.
8. Walls:
 - a. Cover walls and partitions, including pilasters, furred areas, and freestanding columns from floor to ceiling, or from floor to nominal wainscot heights shown with tile.
 - b. Finish reveals of openings with tile, except where other finish materials are shown or specified.

- c. At window openings, provide tile stools and reveals, except where other finish materials are shown or specified.
 - d. Finish wall surfaces behind and at sides of casework and equipment, except those units mounted in wall recesses, with same tile as scheduled for room proper.
9. Joints:
- a. Keep all joints in line, straight, level, perpendicular and of even width unless shown otherwise.
 - b. Make joints 2 mm (1/16 inch) wide for glazed wall tile and mosaic tile work.
 - c. Make joints in quarry tile work not less than 6 mm (1/4 inch) nor more than 9 mm (3/8 inch) wide. Finish joints flush with surface of tile.
 - d. Make joints in Paver tile, porcelain type; maximum 3 mm (1/8 inch) wide.
10. Back Buttering: For installations indicated below, obtain 100 percent mortar coverage by complying with applicable special requirements for back buttering of tile in referenced ANSI A108 series of tile installation standards:
- a. Tile wall installations in wet areas, including showers, tub enclosures, laundries and swimming pools.
 - b. Tile installed with chemical-resistant mortars and grouts.
 - c. Tile wall installations composed of tiles 200 by 200 mm (8 by 8 inches or larger).
 - d. Exterior tile wall installations.

3.8 CERAMIC TILE INSTALLED WITH PORTLAND CEMENT MORTAR

- A. Mortar Mixes for Floor, Wall And Base Tile: ANSI A108.1, except specified otherwise.
- B. Installing Wall and Base Tile: ANSI A108.1, except specified otherwise.
- C. Installing Floor Tile: ANSI A108.1, except as specified otherwise. Slope mortar beds to floor drains a minimum of 1 in 100 (1/8 inch per foot).

3.9 PORCELAIN TILE INSTALLED WITH LATEX PORTLAND CEMENT BONDING MORTAR

Due to the denseness of porcelain tile use latex Portland cement bonding mortar that meets the requirements of ANSI A108.1. Bonding mortars shall be mixed in accordance with manufacturer's instructions. Improper liquid ratios and dwell time before placement of bonding mortar and tile shall affect bond.

3.10 THIN SET CERAMIC AND PORCELAIN TILE INSTALLED WITH DRY-SET PORTLAND CEMENT AND LATEX-PORTLAND CEMENT MORTAR

- A. Installation of Tile: ANSI A108.1, except as specified otherwise.
- B. Slope tile work to drains not less than 1 in 100 (1/8 inch per foot).

3.11 THIN SET CERAMIC AND PORCELAIN TILE INSTALLED WITH ORGANIC ADHESIVE

Installation of Tile: ANSI A108.1.

3.12 THIN SET CERAMIC AND PORCELAIN TILE INSTALLED WITH CHEMICAL-RESISTANT BOND COAT

- A. Epoxy Resin Type: Install tile in accordance with Installation of Tile with Epoxy Mortar; ANSI A108.1.
- B. Furan Resin Type: Proportion, mix and place in accordance with the manufacturer's printed instructions. Set tile in accordance with ANSI A108.1.

3.13 GROUTING

- A. Grout Type and Location:
 - 1. Grout for glazed wall and base tile, paver tile and unglazed mosaic tile. Portland cement grout, latex-Portland cement grout, dry-set grout, or commercial Portland cement grout.
 - 2. Grout for quarry tile floor and base:
 - a. Grout for floors of walk-in refrigerated rooms: Epoxy grout.
 - b. Therapeutic pool areas: Portland cement grout.
 - c. Grout for Kitchens:
 - 1) Chemical-resistant grout as specified and recommended by manufacturer of bond coat.
 - 2) Epoxy grout designed for equivalent heat resistance to furan resin grout may be used for furan resin grout.
- B. Workmanship:
 - 1. Install and cure grout in accordance with the applicable standard.
 - 2. Portland Cement grout: ANSI A108.1.
 - 3. Epoxy Grout: ANSI A108.1.
 - 4. Furan and Commercial Portland Cement Grout: ANSI A108.1 and in accordance with the manufacturer's printed instructions.
 - 5. Dry-set grout: ANSI A108.1.

3.16 MOVEMENT JOINTS

- A. Prepare tile expansion, isolation, construction and contraction joints for installation of sealant. Refer to Section 07 92 00, JOINT SEALANTS.
- B. TCA details EJ 171-02.
- C. At expansion joints, rake out joint full depth of tile and setting bed and mortar bed. Do not cut waterproof or isolation membrane.
- D. Rake out grout at joints between tile, service sink, at toe of base, // and where shown not less than 6 mm (1/4 inch) deep.

3.17 CLEANING

- A. Thoroughly sponge and wash tile. Polish glazed surfaces with clean dry cloths.
- B. Methods and materials used shall not damage or impair appearance of tile surfaces.
- C. The use of acid or acid cleaners on glazed tile surfaces is prohibited.
- D. Clean tile grouted with epoxy, furan and commercial Portland cement grout and tile set in elastomeric bond coat as recommended by the manufacturer of the grout and bond coat.

3.18 PROTECTION

- A. Keep traffic off tile floor, until grout and setting material is firmly set and cured.
- B. Where traffic occurs over tile floor, cover tile floor with not less than 9 mm (3/8 inch) thick plywood, wood particle board, or hardboard securely taped in place. Do not remove protective cover until time for final inspection. Clean tile of any tape, adhesive and stains.

3.19 TESTING FINISH FLOOR

- A. Test floors in accordance with ASTM C627 to show compliance with codes 1 through 10.
- B. Test kitchen and storage rooms.

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